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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,705	09/19/2001	Robert W. Griffiths	1160-3912.1U	7403

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Joseph A Walkowski
Traskbritt
PO Box 2550
Salt Lake City, UT 84110

EXAMINER

JACKSON, ANDRE K

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/889,705

Applicant(s)

GRIFFITHS ET AL.

Examiner

André K. Jackson

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6,13,14,16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Larson (4389889).

Regarding claim 1, Larson discloses in the patent entitled "Apparatus for detecting the presence of water in a fuel tank" which has a sensor with mutually cooperative first and second electrodes (12,20) arranged on the container in isolation from the interior of the container and having a vertical dimension and a horizontal dimension and where at least a majority of their areas are both vertically and horizontally offset from each other (Figure 2).

Regarding claim 2, Larson discloses where the first (12) and second electrodes (20) are substantially both vertically and horizontally offset from each other respectively (Figure 2).

Regarding claim 3, Larson discloses where the first (12) and second (20) electrodes are both completely vertically and horizontally offset from each other respectively (Figure 2).

Regarding claim 4, Larson discloses where the first and second electrodes are both vertically and horizontally spaced from each other respectively (Figure 2).

Regarding claim 5, Larson discloses where the electrodes comprise substantially two-dimensional plates respectively (Figures 2).

Regarding claim 6, Larson discloses where a conductor is coupled to first and second electrodes (Figure 2).

Regarding claim 13, Larson discloses at least one alarm responsive to an output signal from the sensor (31).

Regarding claim 14, Larson discloses where the electrodes are horizontally spaced (Figure 2).

Regarding claim 16, Larson discloses where the first and second electrodes are placed on a wall of the container (Figure 2).

Regarding claim 17, Larson does not disclose a mounting structure can be used to affix the first and second electrodes (Column 3, lines 18-32).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 7,8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson (4389889) in view of Larson (4201085).

Regarding claim 7, Larson (4389889) does not explicitly disclose where the conductors are connected to control circuitry. However, Larson (4201085) discloses an "Apparatus for determining the liquid level in a tank" which teaches where the conductors are connected to control circuitry (Figures 1-2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson to include where the conductors are connected to control circuitry. By adding the circuitry the user would be able to regulate the frequency of the circuitry for measuring the amount of fluid in the container.

Regarding claim 8, Larson does not explicitly disclose a "ZIF" connector, however, it is well within the purview of the skilled artisan to include a "ZIF" connector. Various connectors can be substituted to increase the signal and decrease unwanted noise in the invention.

Regarding claim 12, Larson does not explicitly disclose a control circuitry that is configured to detect a change in capacitance of the sensor. However, Larson discloses control circuitry configured to detect a change in capacitance of the sensor (Figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Larson to include control circuitry configured to detect a change in

capacitance of the sensor. By adding this feature the artisan would be able to change the capacitance to continuously monitor fluid level.

5. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson in view of Hannan et al.

Regarding claims 9,10 and 11, Larson discloses an oscillating signal does but not disclose where the control circuitry is coupled to one of the first and second electrodes and configured to supply an oscillating signal having a frequency greater than 1MHz, at least 4MHz and at least 8MHz to one of the electrodes coupled to a reference voltage. However, Hannan et al. disclose a "Digital liquid level sensing apparatus" which has control circuitry configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes coupled to a reference voltage (Column 5, lines 31-34;Column7, lines 7-37;Column 9). Therefore, to modify Larson to include where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes coupled to a reference voltage would have been obvious to one of ordinary skill in the art at the time of invention since varying the frequency near the upper range gives better results.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larson in view of Jackson.

Regarding claim 18, Larson does not disclose where the mounting structure is a thin electrically insulative film. However, Jackson discloses a "Liquid level sensor and electrode assembly therefore" which teaches mounting structure is a thin electrically insulative film (Column 8, line 36). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Larson to include where the mounting structure is a thin electrically insulative film. Adding the film makes it easier for the sensors to stay in place when attached to an i.v. bag.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larson in view of Paglione.

Regarding claim 19, Larson discloses where the thin electrically insulative film is Mylar. However, Paglione discloses a "Method and apparatus for detecting liquid composition and actual liquid level" which has a thin electrically insulative film is Mylar (Column 6, lines 25-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Larson to include where the thin electrically insulative film is Mylar as taught by Paglione since mylar is flexible and ideal to use with flexible containers.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larson in view of Cohen et al.

Regarding claim 20, Larson does not disclose where the electrodes are placed within the wall of the container. However, Cohen et al. disclose

where the electrodes are placed within the wall of the container (Column 4, lines 66-67 and column 5, line 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson to include where the electrodes are placed within the wall of the container. By adding this feature the electrodes would be free from being dislodge from the tank when placed on the outside of the tank.

9. Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson in view of Hannan et al. and Cohen et al.

Regarding claim 21, Larson discloses a sensor with mutually cooperative and isolated first and second electrodes arranged on the wall of the container in isolation from the interior of the container and having a vertical dimension and a horizontal dimension, where at least a majority of their areas are both vertically and horizontally offset from each other (12,20; Figure 2). Larson does not disclose where the control circuitry is configured to supply a signal having a frequency greater than 1 MHz, at least 4 MHz and at least 8 MHz to one of the electrodes. However, Hannan et al. disclose where the control circuitry is configured to supply a signal having a frequency greater than 1 MHz, at least 4 MHz and at least 8 MHz to one of the electrodes (Column 5, lines 31-34; Column 7, lines 7-37; Column 9). Therefore, to modify Larson to include where the control circuitry is configured to supply a signal having a frequency greater than

1MHz, at least 4 MHz and at least 8MHz to one of the electrodes would have been obvious to one of ordinary skill in the art at the time of invention as taught by Hannan et al. since varying the frequency near the upper range gives better results. Larson does not disclose adjusting a fluid level within the container. However, Cohen et al. disclose adjusting a fluid level within the container (Column 11, line 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson to include adjusting a fluid level within the container. By adding this feature the user would be able to replenish liquid lost.

Regarding claim 22, Larson does not disclose where the electrodes are placed within the wall of the container. However, Cohen et al. disclose where the electrodes are placed within the wall of the container (Column 4, lines 66-67 and column 5, line 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson to include where the electrodes are placed within the wall of the container. By adding this feature the electrodes would be free from being dislodge from the tank when placed on the outside of the tank.

Regarding claim 25, Larson does not disclose where the first and second electrodes are placed on a wall of the container with adhesive. However, Cohen et al. disclose where the first and second electrodes are

placed on a wall of the container with adhesive (Column 2, line 59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson to include where the first and second electrodes are placed on a wall of the container with adhesive. By adding this feature the apparatus would be able to keep the electrodes on to the container without having the electrodes fall from the container.

Regarding claims 23 and 24, Larson does not disclose where the control circuitry is configured to supply a signal having a frequency greater than 1 MHz, at least 4 MHz and at least 8 MHz to one of the electrodes. However, Hannan et al. disclose where the control circuitry is configured to supply a signal having a frequency greater than 1 MHz, at least 4 MHz and at least 8 MHz to one of the electrodes (Column 5, lines 31-34; Column 7, lines 7-37; Column 9). Therefore, to modify Larson to include where the control circuitry is configured to supply a signal having a frequency greater than 1 MHz, at least 4 MHz and at least 8 MHz to one of the electrodes would have been obvious to one of ordinary skill in the art at the time of invention since varying the frequency near the upper range gives better results.

Regarding claim 26, Larson discloses forming the capacitive structure on the wall (Figure 2).

Regarding claims 27 and 28, Larson does not disclose where the output signal exceeds a reference signal and an alarm is initiated once the output signal exceeds the reference signal. However, Cohen et al. disclose where the output signal exceeds a reference signal and an alarm is initiated once the output signal exceeds the reference signal (Column 5, lines 16-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson to include where the output signal exceeds a reference signal and an alarm is initiated once the output signal exceeds the reference signal. By adding this feature the operator would be able to determine when the tank is near empty.

Regarding claim 29, Larson discloses where the alarm is a visual alarm (31).

Response to Arguments

10. Applicant's arguments with respect to claims 1-14 and 16-29 have been considered but are moot in view of the new ground of rejection.
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.


Art Unit: 2856

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

February 3, 2005


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800